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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/743,933	02/14/2001	Ian Bottomley	CM1831M	9058

27752 7590 10/13/2004

THE PROCTER & GAMBLE COMPANY
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EXAMINER

ZANELLI, MICHAEL J

ART UNIT PAPER NUMBER

3661

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/743,933

Applicant(s)

BOTTOMLEY ET AL.

Examiner

Michael J. Zanelli

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 is/are allowed.
- 6) ☒ Claim(s) 12-20 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/3/03, 6/12/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/12/04 has been entered. Claims 12-24 are currently pending.

2. The IDS filed 12/3/03 has been matched with the file. Note DE '974 was cited twice. The IDS filed 7/12/04 has been received. Citations which were noted in the previous IDS have been crossed out. References "bx" and "cd" have not been considered because copies of these documents were not provided.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 12-15, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (5,998,953) in view of Soupert et al. (5,341,540).

A. As per claim 12, Fig. 4 of Nakamura shows power supply (20); traction mechanism to move robot over trackless surface (3a,b); dispense mechanism to deposit fluent on the surface (22); plurality of navigation sensors (79a,b; 78; 6); at least one deposition detector (73); and control system (12). Claim 12 has been amended to include that the navigation sensors enable the robot to navigate around obstacles.

B. At the time of applicant's invention it was known in the self-propelled robot art (i.e., autonomous navigation) to provide sensors on the robot which detect obstacles

Art Unit: 3661

and to program the robot to carry out avoidance procedures (see Soupert at col. 10, lines 19-30). One of ordinary skill in the art would have found such obstacle avoidance procedures advantageous in that the robot could continue to operate without interruption. Such modification of the Nakamura robot would have been relatively easy since sensors for recognizing the environment around the robot were already provided (see Nakamura at col. 4, lines 16-17).

C. As per claims 13-15, as noted above Nakamura includes sensor (6) to detect obstacles in the environment around the robot and liquid detection sensor (73) to detect liquid dispensed on the surface.

D. As per claim 20, as shown in Fig. 4 of Nakamura the traction mechanism includes left and right traction motors.

E. As per claim 22, the robot disclosed by Nakamura and shown in Fig. 4 functions to treat floor coverings in an autonomous manner and senses and controls dispensing of fluent material on the floor covering (col. 4, lines 1-37).

5. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Soupert and Nakanishi (5,815,880).

A. As per claim 23, the claimed invention sets forth various deposited fluent material which may be used with the robot defined in claim 12. Nakamura specifically uses wax as the deposited material since the robot is being used to wax floor surfaces. However, one of ordinary skill in the art would have readily recognized that the teachings of Nakamura could be applied to other types of treatable surfaces.

Art Unit: 3661

B. It was known in this particular art to provide autonomous robots to perform various cleaning functions on different types of treatable surfaces. For example, Nakanishi discloses an autonomous cleaning robot which may include dispensing fluids such as detergents, disinfectant and waxing solution whereby the type of fluid dispensed would have been a function of the treatable surface (see col. 2, line 66 to col. 3, line 3). It would have been obvious to one of ordinary skill in this art to modify the robot of Nakamura to dispense other fluent material as claimed whereby it was known in the art to use autonomous robots to perform various surface treating functions as exemplified by Nakanishi.

6. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Soupert and Azumi et al. (5,622,236).

A. As per claim 24, the claimed invention includes a marker in the deposited material which may be detected by the robot defined in claim 12. Nakamura specifically uses a liquid detection sensor to detect the deposited material as the robot traverses the surface. However, one of ordinary skill in the art would have readily recognized that other means of detecting the deposited material could be used in conjunction with the robot disclosed by Nakamura.

B. For example, Azumi discloses an autonomous robot for cleaning a floor surface (Abs.). In particular, Azumi discloses mixing a luminous material (i.e. marker) with the dispensed material to aid the robot in performing its cleaning function. One of ordinary skill in the art would have found it obvious to use this alternative means of

Art Unit: 3661

detecting the dispensed material in the robot of Nakamura whereby the marker would have enabled the robot of Nakamura to detect the dispensed material.

7. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Soupert and Sekiguchi et al. (publ.).

A. As per claims 16-19, Nakamura and Soupert are applied as above. Claims 16-19 address the processing architecture of the control system of the robot, in particular the use of neural networks to perform hierarchical instructions. At the time of applicant's invention it was known in the robotic arts to use multi-hierarchical neural networks to control the functions of a robot. For example, Sekiguchi teaches how such networks are used to process input information (i.e. sensors) and to adapt the operation of the robot to its environment. One of ordinary skill in the art would have found it obvious to apply the teachings of Sekiguchi to the robot of Nakamura because it would have provided a control structure in which the robot could readily adapt its operation to its changing environment.

8. Claim 21 is distinguishable over the prior art whereby higher-level functions of impact recognition, room size estimation, clutter level determination and battery monitoring are performed by one or more microprocessor controllers or microcontrollers onboard the robot.

9. **REMARKS**

A. Claim 12 was amended to include language directed toward navigating around obstacles. As noted above, Soupert teaches this newly added language. Applicant's arguments distinguish claim 12 and the dependent claims based on this language and are therefore deemed non-persuasive.

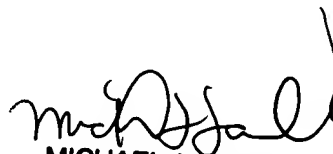
Art Unit: 3661

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Zanelli whose telephone number is (703) 305-9756. The examiner can normally be reached on Monday-Thursday 5:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/mjz


MICHAEL J. ZANELLI
PRIMARY EXAMINER